Remarks

The Office Action mailed February 8, 2007, has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-27 are now pending in this application. Claims 1-20 stand rejected. Claims 21-27 have been withdrawn.

The rejection of Claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Zaugg (U.S. Patent 4,522,024) in view of Payling et al. (U.S. Patent 6,467,252) (hereinafter referred to as "Payling") and optionally in view of Tsukamoto et al. (U.S. Patent 6,397,578) (hereinafter referred to as "Tsukamoto") is respectfully traversed.

Zaugg describes a power station that includes a gas turbine (1), a generator (2), and a compressor circuit, or compressor-group (3). The compressor-group (3) includes a low-pressure stage, a medium-pressure stage, and a high-pressure stage. The gas turbine (1) is coupled to the generator (2) and the compressor-group (3) using a pair of clutches (4). The power station also includes an intercooler (5) that is installed between the low and medium-pressure stages, and between the medium and high-pressure stages of the compressor-group (3). During low-load operation, the compressor-group (3) is coupled to the generator (2) using the clutch (4). The compressed air generated by the compressor-group (3) during such low-load periods is channeled to an air-reservoir cavern (7). The compressor-group (3) charges the air reservoir cavern (7) with compressed air the may be used by the gas turbine (1) during peak-load periods. During such peak-load periods, the compressor-group (3) may be decoupled from the generator (2) using the clutch (4), such that the gas turbine (1) receives combustion air exclusively from the air reservoir cavern (7). Air from the air reservoir cavern (7) is channeled to a recuperator (6) where it is preheated using exhaust gases from the gas turbine (1).

Moreover, during operation, compressed air enters the intercooler (5) and is cooled therein. Water condenses in the intercooler (5) and is channeled from the intercooler (5) into an intermediate condensate vessel (11), and then channeled into a main condensate vessel

(13). The condensate is then channeled from the main vessel (13) to the recuperator (6) where the condensate is pre-heated to facilitate evaporation of the condensate. The evaporated condensate, or steam, is then channeled into a pair of combustion chambers (8 and 9) of the gas turbine (1). The cooled air from the intercooler (5), however, is channeled to the compressor-group (3) and injected therein. Notably, Zaugg does not describe nor suggest *channeling both the cooled compressed airflow and the condensate* from an intercooler to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Moreover, Zaugg does not describe nor suggest an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor.

Payling describes a gas turbine engine that includes at least a low-pressure compressor (12) and a high-pressure compressor (14). The gas turbine engine also includes a water injection apparatus (24) that injects water spray, supplied from an external water source, into an inlet (26) of the high-pressure compressor (14). During operation, compressed air is channeled from a low-pressure compressor (12) to a high-pressure compressor (14). A portion of the compressed air discharged from high-pressure compressor (14) is diverted through an intercooler (68), wherein the compressed air is cooled and injected into the high-pressure compressor (14). The water spray, supplied from an external source, cools the airflow entering the high-pressure compressor (14) for at least each stage of compressor (14) until it evaporates. In another embodiment, Payling describes an intercooler (68) coupled between the low and high-pressure compressors (12 and 14). However, Payling does not describe nor suggest that condensate is formed in the intercooler from the compressed airflow, nor that both the cooled compressed airflow and the condensate from the intercooler are channeled to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Moreover, Payling does not describe nor suggest an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor.

Tsukamoto describes a gas turbine power plant, wherein a spray device (2) sprays fine water droplets into compressed air (A) to humidify the compressed air (A). The humidified air (B) is mixed with fuel (6), wherein the fuel-air mixture is ignited to produce combustion gases that facilitate driving a turbine (7). Moreover, at column 3, lines 6-8, Tsukamoto recites that an "object of the present invention is to provide a gas turbine power plant which has no intercooler for compressed air...." Notably, Tsukamoto does not describe a gas turbine engine that channels both cooled compressed airflow and condensate from an intercooler to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Moreover, Tsukamoto does not describe nor suggest an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor.

Moreover, if art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v. S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. Applicants respectfully submit Zaugg and Payling teach away from each other and the present invention. Zaugg describes a system that removes condensate from a compressor-group using an intercooler and injects the condensate into a combustion chamber of a gas turbine engine. Moreover, Zaugg describes that if water from an outside source is used, additional heat from a heat exchanger within the system would be required to heat the water prior to injection into the combustor, resulting in a loss. Payling, however, describes injecting cooling water into a high-pressure compressor stage, wherein the water is supplied from an external source, rather than from an intercooler. Applicants respectfully submit it would not be obvious to use the water injection system described in Payling with the compressor-group described in Zaugg. Accordingly, Applicants respectfully submit Zaugg and Payling teach away from each other and the present invention.

In addition, Applicants respectfully traverse the assertion on page 3 and 4 of the Office Action that "[i]t would have been obvious to one of ordinary skill in the art to inject

the water between the compressor stages, as taught by Payling, in order to [cool the compressor air], reduce compressor horsepower used and increase engine output levels." Zaugg specifically teaches against injecting water into a compressor-circuit, or compressor-group, which includes a low, medium, and high-pressure stage. Rather, Zaugg recites that "[i]n order to avoid disturbances in the machines and apparatuses, [the] condensate must be removed from the compressor-circuit by water separators." (Column 1, lines 37-39) Zaugg also recites that the condensate is used "for injection into the combustion chamber of the turbine." (Column 1, lines 48-51) As such, Zaugg describes using water separators to remove water from the compressor-group and injecting the water into the combustor. Moreover, Zaugg recites that "[t]he present invention is to use this condensate in an advantageous manner, instead of water of a corresponding quality from external sources...." (Col 1, lines 48-50) Zaugg further describes that if water from an outside source is used, additional heat from a heat exchanger within the system would be required to heat the water prior to injection into the combustor, resulting in a loss. (see Col. 1, lines 64-68 and Col. 2, lines 1-5) Payling describes injecting cooling water into a high-pressure compressor stage, wherein the water is supplied from an external source, rather than from an intercooler. Therefore, in contrast to the assertion in the Office Action, it would not have been obvious to combine Zaugg and Payling. Accordingly, Applicants respectfully request the assertion that "[i]t would have been obvious to one of ordinary skill in the art to inject the water between the compressor stages, as taught by Payling, in order to [cool the compressor air], reduce compressor horsepower used and increase engine output levels" be withdrawn.

Applicants respectfully traverse the assertion on page 7 of the Office Action that states "[w]hile the liquid condensate is extracted from the condensers and used in the combustor, there is no teaching away from using this type of condensate in the 2nd compressor, when combined with Payling." As described above, Zaugg recites that "condensate must be removed from the compressor-circuit by water separators." (Column 1, lines 37-39) Further, Zaugg describes the compressor-circuit, or compressor-group, as including a low-pressure compressor, a medium-pressure compressor, and a high-pressure compressor. As a result, the compressor-group includes a first compressor, a second compressor, and a third compressor. Injecting condensate into a second compressor of a

compressor-group, as suggested by the Examiner, would result in condensate being re-injected into the compressor-group, which will subsequently be removed by the intercoolers. Applicants respectfully submit that it is clear error to assert that using an intercooler to remove condensate from a compressor-group that includes a first, second, and third compressor is analogous to injecting intercooler condensate into a second compressor.

Further, Applicants respectfully traverse the assertion on page 7 of the Office Action that states:

> Applicant's argument that the condensate must be removed from the intercooler is not equivalent to remove all the water from the compressor stages. Rather, the intercooler and aftercooler would have the water removed. This does not equate to a teaching that water must be completely removed from the 2nd compressor. Note that Zaugg specifically teaches that the water remains even after the removal process, giving an example of 1/50 of the original water still remains in the air after the water is separated (see col. 1, lines 28-36). Hence, water [is] still taught as being present in the 2nd compressor.

Applicants respectfully submit that the Examiner has mistakenly misconstrued Applicants' argument. Applicants respectfully submit that Zaugg describes removing condensate from a compressor-group using an intercooler and injecting the condensate into the combustion chamber of a gas turbine engine, rather than channeling the condensate and the compressed air from an intercooler to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Further, Applicants submit that it would be clear error to assert that not completely removing all the water from the compressor-group is analogous to channeling both the cooled compressed airflow and the condensate from an intercooler to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Accordingly, Applicants respectfully request that the assertion stated above and on page 7 of the Office Action be withdrawn.

Moreover, the Examiner does not provide any support for the assertion on page 8 of the Office Action that states "[t]he 2nd compressor of Zaugg having a reduced humidity due to the condensation in the intercooler stages would thus have a large capacity for receiving sprayed water." Applicants respectfully submit that Zaugg does not describe nor suggest that

a compressor-group having a reduced humidity due to the condensation in the intercooler stages would have a large capacity for receiving sprayed water. As such, the assertion is made without proper support. Accordingly, Applicants respectfully request the assertion that "[t]he 2nd compressor of Zaugg having a reduced humidity due to the condensation in the intercooler stages would thus have a large capacity for receiving sprayed water" be withdrawn.

Claim 1 recites a method for operating a gas turbine engine, including a first compressor, a second compressor, and a turbine, coupled together in serial flow arrangement, said method comprising "channeling compressed airflow discharged from the first compressor through an intercooler having a cooling medium flowing therethrough . . . operating the intercooler such that the compressed airflow is facilitated to be cooled and condensate is formed in the intercooler from the compressed airflow . . . channeling the cooled compressed airflow and the condensate from the intercooler to an inlet of the second compressor to facilitate reducing an operating temperature of the gas turbine engine, wherein channeling the condensate comprises channeling the condensate from the intercooler to an annular manifold using an injection system coupled in flow communication between the intercooler and the manifold, wherein the injection system facilitates supplying the condensate to a plurality of nozzles coupled to the manifold . . . ejecting the condensate from the plurality of nozzles to an inlet of the second compressor."

None of Zaugg, Payling, or Tsukamoto, considered alone or in combination, describes nor suggests a method for operating a gas turbine engine, as is recited in Claim 1. More specifically, no combination of Zaugg, Payling, and Tsukamoto describes nor suggests a method including channeling both cooled compressed airflow and condensate from an intercooler to an inlet of a second compressor. Furthermore, none of Zaugg, Payling, or Tsukamoto, considered alone or in combination, describes nor suggests channeling the condensate from the intercooler to an annular manifold of the second compressor using an injection system coupled in flow communication between the intercooler and the manifold. Rather, in contrast to the present invention, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, Payling

describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than from an intercooler, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

Claims 2-8 depend from independent Claim 1. When the recitations of Claims 2-8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-8 likewise are patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

Claim 9 recites a cooling system for a gas turbine engine that includes at least a first compressor, a second compressor, and a turbine, said cooling system comprising "an intercooler coupled downstream from the first compressor such that compressed air discharged from the first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough to facilitate cooling the compressed air to form condensate, said intercooler configured to discharge the cooled compressed air and the condensate to the second compressor . . . an injection system coupled in flow communication between said intercooler and the second compressor . . . and an annular manifold extending circumferentially around the second compressor and comprising a plurality of nozzles, said injection system configured to channel the condensate discharged from said intercooler into said annular manifold to facilitate supplying a flow of condensate to said plurality of nozzles, said plurality of nozzles configured to eject condensate into the second compressor, such that the condensate and the cooled compressed air facilitate reducing an operating temperature of the gas turbine engine."

None of Zaugg, Payling or Tsukamoto, considered alone or in combination, describe nor suggest a cooling system for a gas turbine engine, as is recited in Claim 9. More specifically, no combination of Zaugg, Payling and Tsukamoto describes nor suggests a cooling system that includes an intercooler configured to discharge both cooled compressed air and condensate to a second compressor. Furthermore, none of Zaugg, Payling, or

Tsukamoto, considered alone or in combination, describes nor suggests an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor. Rather, in contrast to the present invention, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, Payling describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than an intercooler, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted to be patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

Claims 10-15 depend from independent Claim 9. When the recitations of Claims 10-15 are considered in combination with the recitations of Claim 9, Applicants submit that dependent Claims 10-15 likewise are patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

Claim 16 recites a gas turbine engine comprising "a first compressor . . . a second compressor downstream from said first compressor . . . a turbine coupled in flow communication with said second compressor . . . a cooling system comprising an intercooler coupled downstream from said first compressor such that compressed air discharged from said first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough to facilitate cooling the compressed air to form condensate, said intercooler configured to discharge the cooled compressed air and the condensate to said second compressor . . . a condensate injection system coupled in flow communication between said intercooler and said second compressor . . . an annular manifold coupled in flow communication to said second compressor and comprising a plurality of nozzles, said condensate injection system configured to channel the condensate discharged from said intercooler into said plurality of nozzles for ejection into said second compressor, such that the condensate and the cooled compressed air facilitate reducing a temperature of said gas turbine engine."

None of Zaugg, Payling or Tsukamoto, considered alone or in combination, describes nor suggests a gas turbine engine, as is recited in Claim 16. More specifically, no combination of Zaugg, Payling and Tsukamoto describes nor suggests a cooling system that includes an intercooler configured to discharge both cooled compressed air and condensate to a second compressor. Furthermore, none of Zaugg, Payling, or Tsukamoto, considered alone or in combination, describes nor suggests a condensate injection system coupled in flow communication between the intercooler and the second compressor, wherein the condensate injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor. Rather, in contrast to the present invention, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, Payling describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than an intercooler, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

Claims 17-20 depend from independent Claim 16. When the recitations of Claims 17-20 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 17-20 likewise are patentable over Zaugg in view of Payling and optionally in view of Tsukamoto.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejections of Claims 1-20 be withdrawn.

The rejection of Claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Payling in view of Zaugg or EP 524435 (hereinafter referred to as "EP '435") and optionally Tsukamoto, is respectfully traversed.

Payling, Zaugg, and Tsukamoto are described above.

EP '435 describes a compressor system that includes a supercharger (12) coupled in flow communication to a main air compressor (16) using an evaporative cooler (14). The

evaporative cooler (14) includes a pipe section coupled in flow communication between a discharge portion of the supercharger (12) and an inlet of the main compressor (16). A plurality of intercoolers (18) and aftercoolers (20) are coupled in flow communication to the main compressor (16). Condensate is separated from a compressed airflow discharged by the main compressor (16) using the intercoolers (18) and aftercoolers (20), wherein the condensate is collected in a collection tank (28). The condensate is channeled to a pair of atomizing nozzles (34) coupled within the evaporative cooler pipe such that the condensate is sprayed into the airflow upstream of the main compressor (16). As a result, the condensate injected into the evaporative cooler pipe cools the airflow prior to entering the main compressor (16), wherein the condensate will be removed again by the intercoolers and aftercoolers. Notably, EP '435 does not describe nor suggest channeling both the cooled compressed airflow and the condensate from an intercooler to an inlet of a second compressor to facilitate reducing an operating temperature of a gas turbine engine. Moreover, EP '435 does not describe nor suggest an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor.

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes or suggests the claimed combination. Further, in contrast to the Examiner's assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Payling, Zaugg, EP '435, and Tsukamoto because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Rather, only the conclusory assertion that it would have been obvious to a person having ordinary skill in the art at the time of invention suggests combining the disclosures.

As explained by the Federal Circuit, "to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicants." In re Kotzab, 54 U.S.P.Q.2d 1308, 1316 (Fed. Cir. 2000); M.P.E.P. 2143.01.

Further, as is well established, the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. *See* In re Gordon, 221 U.S.P.Q.2d 1125 (Fed. Cir. 1984). The Federal Circuit has determined that:

> [i]t is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

In re Fritch, 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

Further, under Section 103, "it is impermissible . . . to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 147 U.S.P.Q. 391, 393 (CCPA 1965). Rather some suggestion to combine such references and a reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion nor motivation to combine the cited art, or any reasonable expectation of success has been shown.

Accordingly, since there is no teaching or suggestion in the cited art for the claimed combination, the Section 103 rejection appears to be based on hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for at least this reason, Applicants respectfully request that the Section 103 rejection be withdrawn.

Moreover, if art "teaches away" from a claimed invention, such a teaching supports the nonobviousness of the invention. U.S. v. Adams, 148 USPQ 479 (1966); Gillette Co. v.

S.C. Johnson & Son, Inc., 16 USPQ2d 1923, 1927 (Fed. Cir. 1990). In light of this standard, it is respectfully submitted that the cited art, as a whole, is not suggestive of the presently claimed invention. Applicants respectfully submit Payling and Zaugg teach away from each other and the present invention. Payling, describes injecting cooling water into a high-pressure compressor stage, wherein the water is supplied from an external source, rather than from an intercooler. Zaugg, however, describes a system that removes condensate from a compressor-group using an intercooler and injects the condensate into a combustion chamber of a gas turbine engine. Moreover, Zaugg describes that if water from an outside source is used, additional heat from a heat exchanger within the system would be required to heat the water prior to injection into the combustor, resulting in a loss. Applicants respectfully submit it would not be obvious to use the water injection system described in Payling with the compressor-group described in Zaugg. Accordingly, Applicants respectfully submit Payling and Zaugg teach away from each other and the present invention.

Claim 1 recites a method for operating a gas turbine engine, including a first compressor, a second compressor, and a turbine, coupled together in serial flow arrangement, said method comprising "channeling compressed airflow discharged from the first compressor through an intercooler having a cooling medium flowing therethrough . . . operating the intercooler such that the compressed airflow is facilitated to be cooled and condensate is formed in the intercooler from the compressed airflow . . . channeling the cooled compressed airflow and the condensate from the intercooler to an inlet of the second compressor to facilitate reducing an operating temperature of the gas turbine engine, wherein channeling the condensate comprises channeling the condensate from the intercooler to an annular manifold using an injection system coupled in flow communication between the intercooler and the manifold, wherein the injection system facilitates supplying the condensate to a plurality of nozzles coupled to the manifold . . . ejecting the condensate from the plurality of nozzles to an inlet of the second compressor."

None of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests a method for operating a gas turbine engine, as is recited in Claim 1. More specifically, no combination of Payling, Zaugg, EP '435, and Tsukamoto describes nor

suggests a method including channeling both cooled compressed airflow and condensate from an intercooler to an inlet of a second compressor. Furthermore, none of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests channeling the condensate from the intercooler to an annular manifold of the second compressor using an injection system coupled in flow communication between the intercooler and the manifold. Rather, in contrast to the present invention, Payling describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than from an intercooler, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, EP '435 describes using intercoolers and aftercoolers to remove condensation from a main compressor and then channel the condensate to a evaporative cooler pipe upstream of the main compressor, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

Claims 2-8 depend from independent Claim 1. When the recitations of Claims 2-8 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2-8 likewise are patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

Claim 9 recites a cooling system for a gas turbine engine that includes at least a first compressor, a second compressor, and a turbine, said cooling system comprising "an intercooler coupled downstream from the first compressor such that compressed air discharged from the first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough to facilitate cooling the compressed air to form condensate, said intercooler configured to discharge the cooled compressed air and the condensate to the second compressor . . . an injection system coupled in flow communication between said intercooler and the second compressor . . . and an annular manifold extending circumferentially around the second compressor and comprising a plurality of nozzles, said

injection system configured to channel the condensate discharged from said intercooler into said annular manifold to facilitate supplying a flow of condensate to said plurality of nozzles, said plurality of nozzles configured to eject condensate into the second compressor, such that the condensate and the cooled compressed air facilitate reducing an operating temperature of the gas turbine engine."

None of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests a cooling system for a gas turbine engine, as is recited in Claim 9. More specifically, no combination of Payling, Zaugg, EP '435, and Tsukamoto describes nor suggests a cooling system that includes an intercooler configured to discharge both cooled compressed air and condensate to a second compressor. Furthermore, none of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests an injection system coupled in flow communication between the intercooler and the second compressor, wherein the injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor. Rather, in contrast to the present invention, Payling describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than from an intercooler, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, EP '435 describes using intercoolers and aftercoolers to remove condensation from a main compressor and then channel the condensate to a evaporative cooler pipe upstream of the main compressor, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 9 is submitted to be patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

Claims 10-15 depend from independent Claim 9. When the recitations of Claims 10-15 are considered in combination with the recitations of Claim 9, Applicants submit that dependent Claims 10-15 likewise are patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

Claim 16 recites a gas turbine engine comprising "a first compressor . . . a second compressor downstream from said first compressor . . . a turbine coupled in flow communication with said second compressor . . . a cooling system comprising an intercooler coupled downstream from said first compressor such that compressed air discharged from said first compressor is routed therethrough, said intercooler having a working fluid flowing therethrough to facilitate cooling the compressed air to form condensate, said intercooler configured to discharge the cooled compressed air and the condensate to said second compressor . . . a condensate injection system coupled in flow communication between said intercooler and said second compressor . . . an annular manifold coupled in flow communication to said second compressor and comprising a plurality of nozzles, said condensate injection system configured to channel the condensate discharged from said intercooler into said plurality of nozzles for ejection into said second compressor, such that the condensate and the cooled compressed air facilitate reducing a temperature of said gas turbine engine."

None of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests a gas turbine engine, as is recited in Claim 16. More specifically, no combination of Payling, Zaugg, EP '435, and Tsukamoto describes nor suggests a cooling system that includes an intercooler configured to discharge both cooled compressed air and condensate to a second compressor. Furthermore, none of Payling, Zaugg, EP '435, or Tsukamoto, considered alone or in combination, describes nor suggests a condensate injection system coupled in flow communication between the intercooler and the second compressor, wherein the condensate injection system channels condensate from the intercooler to a plurality of nozzles coupled to the second compressor. Rather, in contrast to the present invention, Payling describes injecting cooling water into a high-pressure compressor, wherein the water is supplied from an external source, rather than from an intercooler, Zaugg describes removing water from compressor stages using an intercooler and then channeling the water to a combustor, EP '435 describes using intercoolers and aftercoolers to remove condensation from a main compressor and then channel the condensate to a evaporative cooler pipe upstream of the main compressor, and Tsukamoto merely describes a gas turbine power plant that does not include an intercooler.

Accordingly, for at least the reasons set forth above, Claim 16 is submitted to be patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

Claims 17-20 depend from independent Claim 16. When the recitations of Claims 17-20 are considered in combination with the recitations of Claim 16, Applicants submit that dependent Claims 17-20 likewise are patentable over Payling in view of either Zaugg or EP '435 and optionally in view of Tsukamoto.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejections of Claims 1-20 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

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